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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,184	07/06/2001	Kazuaki Tashiro	35.C15537	2691

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EXAMINER

MORAN, TIMOTHY J

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 08/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,184

Applicant(s)

TASHIRO ET AL.

Examiner

Timothy J. Moran

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 46, 48, and 50 is/are allowed.
- 6) ☒ Claim(s) 1-45, 47, and 49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15, 18-21, 23, and 28-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the term "to commonly process the plurality of pixels or/and" is unclear, since the specification implies that the pixel signals are processed, not the pixels.

Regarding claims 7, 19, 31, and 33, the term "an entire area per one pixel region" is unclear.

Regarding claims 8 and 20, the term "arranged on pixels apart from each other" is unclear.

Regarding claims 9, 21, 32, and 34, the term "a partial area per one pixel region" is unclear.

Regarding claim 12, the term "a plurality of rows or columns basis in a column or row direction" is unclear.

Regarding claim 14, it is unclear whether the term "one pixel region" in lines 2-3 and in line 4 refers to the term "regions" in claim 1, line 5.

Regarding claim 18, the term "arranged between the plurality of photoelectric conversion units" is unclear.

Regarding claims 28-29 and 33-34, the term "said protection circuit" does not necessarily have an antecedent, since the term "or" is used in claim 27.

Regarding claims 30-32 and 35-37, the term "said external terminal" does not necessarily have an antecedent, since the term "or" is used in claim 27.

Regarding claims 38-44, the terms "said external terminal" and "said protection circuit" do not necessarily have antecedents, since the term "or" is used in claim 27.

Regarding claim 35, it is not clear how an external terminal can be both "arranged between the plurality of photoelectric conversion units" and "arranged in one pixel region."

Regarding claim 36, it is not clear how an external terminal can be both "arranged between the plurality of photoelectric conversion units" and "arranged in a plurality of pixel regions."

Regarding claim 37, it is not clear how an external terminal can be "arranged between the plurality of photoelectric conversion units" and also occupy "a partial area in each pixel region."

Regarding claim 38, it is not clear how an external terminal and a protection circuit can be both "arranged between the plurality of photoelectric conversion units" and "arranged in the same pixel region."

Regarding claims 41-43, it is not clear how an external terminal can be both "arranged between the plurality of photoelectric conversion units" and arranged in different pixel regions.

Regarding claim 45, the term "external terminals" does not necessarily have an antecedent, since the term "or" is used in claim 27.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 13, 16-17, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Orava, U. S. Patent No. 6,035,013. Regarding claim 1, Orava describes an image pickup apparatus (fig. 5) comprising a plurality of photoelectric conversion

units (16) are arranged in a plurality of regions, and a scan circuit (fig. 3, element 60, col. 16, lines 18-30) arranged between said photoelectric conversion units to commonly process signals from the plurality of pixels.

Regarding claims 2-3 and 13, Orava (fig. 3) teaches the use of vertical and horizontal scan circuits.

Regarding claim 4, Orava (col. 5, lines 39-42) teaches the use of a shift register.

Regarding claim 6, Orava (col. 5, lines 58-62) teaches the use of a decoder in the scan circuit.

Regarding claim 16, Orava (fig. 4) teaches the transfer of signals from vertical output line (element labeled "R.OUT 1") to a horizontal output line (signal line below elements "SW1").

Regarding claim 17, Orava (col. 6, lines 41-44) teaches the use of a multiplexer.

Regarding claim 27, Orava (element 220, fig. 6B, col. 24, lines 5-8) teaches the placement of an external terminal between the plurality of photoelectric conversion units.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

Art Unit: 2878

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Orava as applied to claim 1 above, and further in view of Ichikawa, U. S. Patent No. 6,127,998. Orava does not teach the use of a static shift register. However, Ichikawa teaches (abstract) that static shift registers can be used to provide signals to pixel-based devices. Therefore it would have been obvious to one of ordinary skill in the art to provide static shift registers in the apparatus of Orava for the benefit of providing voltages to pixels.

Claims 15, 18, 22, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orava. Regarding claims 15 and 22, the presence of an electric power supply line is inherently implied in the device of Orava, but Orava is silent regarding the physical placement of such a power supply line. However, since the placement of power supply lines on thin film circuitry is well known in the art of electronics, it would have been obvious to one of ordinary skill in the art to provide for an electric power supply line arranged on a scan circuit in the apparatus of Orava.

Regarding claim 18, the use of amplifiers is well known in the art of pixel-based devices. Therefore the use of an amplifier in the apparatus of Orava would have been

obvious to one of ordinary skill in the art to provide an amplifier for the advantage of amplified signals.

Regarding claim 30, the use of a terminal comprising a bump is well known in the art of substrate based electronics. Therefore the use of an amplifier in the apparatus of Orava would have been obvious to one of ordinary skill in the art to provide electrical contact to the detector.

Claims 23-26, 47, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orava as applied to claims 1, 16, and 27 above, and further in view of Sayed, U. S. Patent No. 5,773,832. Regarding claims 23-24 and 47, Sayed teaches (fig. 7, col. 6, lines 8-13) the use of a scintillator plate (18c) and a fiber optic plate (18b) in an X-ray detection apparatus. Therefore it would have been obvious to one of ordinary skill in the art to provide them in the apparatus of Orava to improve the sensitivity to radiation.

Regarding claims 25-26 and 49, Orava teaches the use of a signal processing circuit (fig. 1, element 24), a recording circuit (fig. 1, element 28, col. 27, lines 44-48), a display circuit (fig. 1, element 32), and a radiation source (abstract).

Claims 28-29, 39, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orava as applied to claim 27 above, and further in view of Polischuk, U. S. Patent No. 6,353,229. Polischuk teaches the use of a protection circuit (fig. 2, element 28, col. 7, lines 8-15) in the region to the side of the pixels in a radiation imaging apparatus. Neither Orava nor Polischuk teaches the use of a protection resistor or a protection diode in a protection circuit. However, the use of resistors and diodes is

well known in the art of protection circuits. Therefore it would have been obvious to one of ordinary skill in the art to provide for a resistor or diode in a protection circuit in the apparatus of Orava for the benefit of overvoltage protection.

Allowable Subject Matter

Claims 46, 48, and 50 are allowed.

Claims 10-11, 40, and 45 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 10-11 include the limitations that a scan circuit is bent so as not to cross a perpendicularly arranged scan circuit. Claim 40 includes the limitations that an external terminal and a protection circuit overlap each other in a photoelectric imager. Claim 45 includes limitations describing specific locations of external terminals in neighboring regions and a wiring line in an imaging apparatus. Claim 46 includes limitations describing specific locations of external terminals in neighboring regions and a wiring line in an imaging apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Moran whose telephone number is 703-305-0849. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703-308-4881. The fax phone numbers for

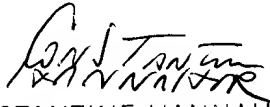
Art Unit: 2878

the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

T.M.

TM
August 22, 2002


CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878